Database choices in endocrine systematic reviews

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DOI: http://dx.doi.org/10.3163/1536-5050.103.4.005

Objective: The choice of bibliographic database during the systematic review search process has been an ongoing conversation among information specialists. With newer information sources, such as Google Scholar and clinical trials registries, we were interested in which databases were utilized by information specialists and systematic review researchers.

Method: We retrieved 144 systematic reviews and meta-analyses from 4 clinical endocrinology journals and extracted all information sources used during the search processes.

Results: Findings indicate that traditional bibliographic databases are most often used, followed by regional databases, clinical trials registries, and gray literature databases.

Conclusions: This study informs information specialists about additional resources that may be considered during the search process.

Keywords: Review; Databases, Bibliographic; PubMed; MEDLINE; Meta-Analysis; Information Services

INTRODUCTION

Systematic reviews are known for their systematic and explicit methods to identify, select, and evaluate research [1]. For many years, information specialists have discussed which databases should be used to perform a comprehensive, thorough search of the literature [2]. Consensus among practitioners was that traditional bibliographic databases such as Embase and MEDLINE are the primary search tools used for systematic review searches [3]. Since that time, a number of alternative options have emerged. Google Scholar was developed in 2004 and has been considered a viable option for systematic review searches [4], although many have cautioned against its use as the sole database for searching in systematic reviews [2]. Clinical trials registries have also been suggested as a viable source for unpublished trial data for inclusion in systematic reviews [5].

With so many options available, unanswered questions remain regarding the specific databases and search engines currently being utilized in systematic reviews and meta-analyses. The authors, therefore, sought to investigate the frequency of use of search tools employed in systematic reviews and meta-analyses between 2008 and 2014. We selected the clinical endocrinology literature in order to evaluate a particular subspecialty of medicine.

METHODS

We located systematic reviews and meta-analyses published between January 1, 2008, and December 31, 2014, from four clinical endocrinology journals: *Clinical Endocrinology, The Journal of Clinical Endocrinology & Metabolism*, *Endocrine*, and *Endocrine Reviews*. Studies were retrieved through a PubMed search of MEDLINE using the following search string:

(((((“Endocrine reviews”[Journal]) OR “Endocrine”[Journal]) OR “Clinical endocrinology”[Journal]) OR (“The Journal of clinical endocrinology and metabolism”[Journal]))) AND (((((Meta-analysis[Title/Abstract]) OR Meta-analysis[MeSH Terms]) OR Meta-analysis[Publication Type]) OR Systematic review[Title/Abstract]) AND (“2008/01/01”[PDat] : “2014/12/31”[PDat]) AND Humans[Mesh])

This strategy has been proved to be sensitive to identifying published systemic reviews and meta-

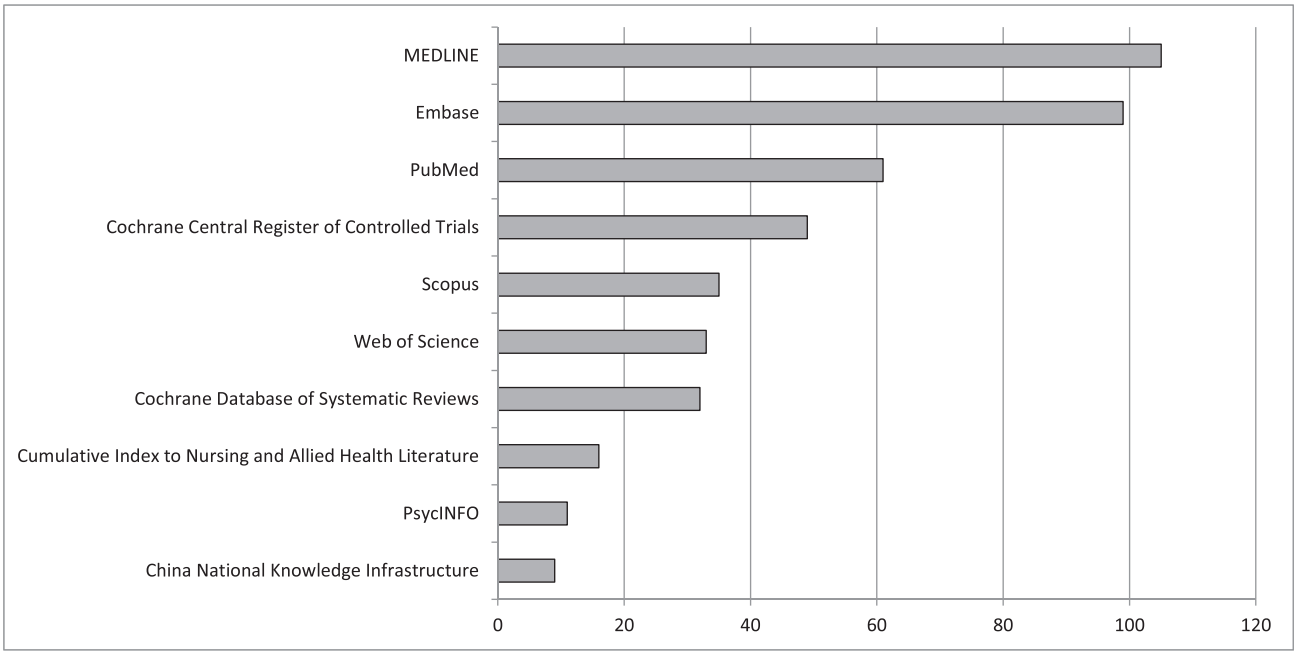

Figure 1
Bar chart of most commonly searched bibliographic databases in a sample of endocrine systematic reviews

analyses in previous research [6]. The search was performed on December 18, 2014.

Prior to coding, we conducted a training session for all coders to improve the consistency of the coding process. An abstraction manual was used for standardization, and all training was conducted based on this manual. After training, we selected a subset of articles for training purposes and independently coded them following the abstraction manual. We discussed any disagreements in training and handled them by consensus.

Coders were next assigned an equal number of systematic reviews and meta-analyses. Each was coded to identify all bibliographic databases and other sources used by researchers during the search process. After coding was completed, a validity check was performed of each coded element by a second coder. Any discrepancies were revisited and resolved by consensus of the rater pair. Once coding was completed, frequency counts were tabulated via Microsoft Excel.

RESULTS

Our search retrieved 182 records published between January 1, 2008, and December 31, 2014. One-hundred forty-four were determined to be systematic reviews and meta-analyses from full-text reviews by the study investigators. From these systematic reviews, 47 unique databases were used during the search process. Figure 1 displays the frequency of use of the most widely searched databases.

As shown in Figure 1, MEDLINE was the most frequently searched database, followed by Embase and PubMed. Aside from those presented in Figure 1, the most frequently cited databases included Wanfang (n=7), Web of Knowledge (n=7), Google Scholar (n=7), Ovid Healthstar (n=7), Chinese Bio-Medical Literature (n=4), ScienceDirect (n=4), Science Citation Index (n=4), ERIC (n=4), BIOSIS (n=4), Database of Abstracts of Reviews of Effects (n=3), and LILACS (n=3). The remaining 25 databases were cited either in 1 or 2 systematic reviews. Of these, many were regional databases from around the world (e.g., Eastern Mediterranean Index, KoreanMed, IranMedex) or registries for clinical trials (e.g., ClinicalTrials.gov, Cochrane Oral Health, and ENT Groups Trial Register).

DISCUSSION

Our results are representative of the clinical endocrinology literature over the time period covered in our study and might not apply beyond

the journals and time frame of this research. With this consideration in mind, our results indicate that traditional bibliographic databases were still utilized with the greatest frequency in systematic review searches in clinical endocrinology over this time period. The advanced search features of these databases make them attractive options for information specialists and meta-analysts. The results from this study should inform information specialists about additional resources that can be considered during the search process. For example, clinical trials registries were seldom used in searches. Given the mandates of trial registration prior to commencement, these registries would be valuable sources for potential data. Additionally, other sources, such as the System for Information on Grey Literature in Europe (SIGLE), allow meta-analysts to conduct a search for gray literature that is often missed during the selection process. While such sources have been used infrequently to date, we hope that information specialists will take advantage of search options in addition to traditional bibliographic databases.

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Received March 2015; accepted May 2015